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ABSTRACT

A study sought to determine the feasibility of the COMP/ACT objective test, a competency battery, as a measure of ability to function effectively in adult roles. (Using stimulus materials from many different courses, such as broadcasts and television documentaries, the test measures six skill areas, including communicating, problem solving, and value clarification.) The test was implemented in selected vocational programs in Florida over the 1978-79 school year. The results of the field-testing indicated the test was not sexually biased in the sample, but there was a marked variance between the scores of black and white students, which would require further research to explain and verify. The reading level of the students tested appeared to be a major factor in their ability to perform well. This factor limits the feasibility of the COMP test for programs where the reading level is low. It was recommended that test scores be correlated with employer evaluations to determine the extent that they reflect effective functioning in adult roles. Additionally, the test should be produced in a form specially designed for vocational students. (Appendixes, amounting to approximately two-thirds of the report, include correspondence and a paper on instructor role in scoring competency tests.)
(Author/YLB)

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ED194717

Final Report

Project No. DVE 92C21

From July 1, 1978 to June 30, 1979

Integrating Competency Testing with Vocational-Technical Programs of Instruction and Training

University of West Florida
Pensacola, Florida

Project Director - L. Hobdy Perkins

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Table of Contents

	Page
Acknowledgments	ii
Abstract	1
Part I: Introduction	
Background Statement	2
Project Objectives	3
The COMP/ACT Test	3
Part II: Procedures	
Selection of Participating Institutions	4
Visits to Participating Institutions	5
Administration of Tests to Students	5
Initial Scoring of Tests	6
Communicating Results to Students	7
Communicating Results to Administration and Faculty	7
Collection of Criteria Data	8
Analysis of Scored Test Information	9
Part III: Results and Findings	
Limitations on Data	9
Findings	10
Part V: Conclusions and Recommendations	12
References	13
Appendices	
I. Sample Student Invitation Letter	14
II. Role of the Instructor in Scoring Competency Tests	15
III. List of Participating Institutions	30
IV. Letter of Invitation to New Schools	31
V. Letter of Invitation to Former Participants	33
VI. Testing Schedule	35
VII. Sample Student Test Feedback	36
VIII. Letter sent to Absentee Students	37
IX. List of Criteria Data	38
X. Score Reports for Total Sample and Reading Group	39
XI. College Sophomore Norm Table	40

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Dr. James Zafirau of the Educational Research Center of the University of West Florida, by leave of his Director Dr. Franklin Wittwer invested much time and labor in shaping the goals and overcoming the obstacles involved in this effort. Where this project and report is successful, he should be honored for his many contributions.

School principals arranged for the tests to be given; students contributed time and effort to completing the COMP battery, and teachers adjusted their classes to enable the students to report for testing. I acknowledge with deep appreciation the efforts of all of these participants in the project.

Clifford E. Nilson, Jr.
Project Manager

June, 1980
Tallahassee, Florida

Integrating Competency Testing with
Vocational-Technical Programs of Instruction and Training

Abstract

This study sought primarily to determine the feasibility of the COMP/ACT objective test as a measure of ability to effectively function in adult roles. The test was implemented in selected Vocational Programs across the state of Florida over the 1978-79 school year.

The COMP/ACT test is a unique design which includes stimulus material from many different sources, including news broadcasts and television documentaries. The test measures in six skill areas, including communicating, problem solving, and value clarification.

The results of the field-testing indicates that the test was not sexually biased in our sample, but there was a marked variance between the scores of black and white students which would require further research to explain and varify.

The reading level of the students tested appeared to be a major factor in their ability to perform well. This factor limits the feasibility of the COMP test for programs where the reading level is low.

It is recommended that the COMP test scores be correlated with employer evaluations to determine the extent that the COMP reflects effective functioning in adult roles. Additionally, the COMP test should be produced in a form specially designed for vocational students.

I. INTRODUCTION

Background Statement

It is apparent from a simple review of current educational literature, that a major force in educational training is in the area of competency-based education. The primary focus of this movement has been in three areas:

1. Defining educational outcomes in terms of competence

2. Developing teaching strategies to produce these outcomes

3. Designing assessment tools to measure the extent of outcome attainment.

The very nature of competency-based education has made it amenable to vocational training. Many programs in vocational and technical schools have been oriented toward specific goals and detailed objectives. Because of this, competency-based techniques have been widely accepted and approved, especially in the more technical and job-specific programs.

There is a basic difference, however, between those programs designed only to provide the students with specified skills and those which are designed to provide the capacity to deal with a variety of circumstances. There appears to be a tension between educating for specific and sometimes non-transferable skills and educating for general and fundamentally transferrable skills. Any comprehensive philosophy of education requires a perspective on this problem and its implications.

In most vocational programs, as well as in other educational realms, the methods of implementing competency-based education have depended on the hope that if specific skills have been addressed, which are necessary to the job, the additional, somehow less defineable skills would be imparted as a by-product of the educational process. Competency-based education does not lend itself easily to imparting general wisdom because of its focus on the accomplishment of simple tasks.

The majority of research and implementation in competency-based education has been in programs where clearly defined outcomes are a natural product of quality instruction. There is a lack of competency-based educational programs in areas which must be broadly defined, such as social skills or communication. These areas may not be dissected without a clear statement of philosophical basis, since they are closely tied to important values. Any teaching or measurement of these skills implies a basic philosophy, not only of education, but of life.

The research discussed in this report dealt with an attempt to measure these more general skills, using the basic tools of competency-based education.

More specifically, the researchers utilized a competency test, which was designed to measure general skills, in programs which were oriented toward job-specific goals. A basic conflict existed between the areas being tested and the curriculum of the programs. This conflict was the root of major problems met by the researchers which will be discussed later.

Project Objectives

The research reported in this paper was a natural progression from an earlier study "Assessing Basic Learning Competence in the Post-secondary Vocational schools of Florida", a research funded also by the Vocational Division of the Florida Department of Education. The major focus of the previous study was to field test a competency battery which had been developed by the American College Testing Program - the COMP/ACT battery.

The findings of the assessment project pointed toward the further use of the COMP/ACT battery, or tests like it, in the post-secondary vocational programs of Florida's schools. There were some qualifications, however. The researchers felt that the test would have to be shortened to about 2½ hours (from 4-6 hours) and that the use of any test should be more fully integrated into the ongoing programs of instruction, guidance, and training.

In order to implement these suggestions, the following research was born. This paper is the final report of the project, "Integrating Competency Testing with Vocational Programs in the State of Florida". The major objectives of this project were to:

1. Field test a new, objective form of the COMP/ACT battery.

2. Integrate competency tests of generic skills into vocational programs.

3. Obtain student, teacher, and administrative feedback concerning the relevance and usefulness of the test in vocational programs.

4. Study and report the relationship of test performance to such factors as age, sex, grades, and work performance.

The COMP/ACT Test

Development of the COMP/ACT test batteries was begun in the fall of 1976. The American College Testing Program, in conjunction with colleges and universities across the nation, set out to develop instruments and procedures for assessing general education outcomes at the undergraduate level. They arrived at a consensus concerning the generic skills necessary to effective functioning in adult roles and then began to create testing materials. It was a difficult task, and one which others had begun and not completed. Although a nationwide consensus had not been obtained that the skills identified by the COMP/ACT team and its advisors were all essential to effective adult life, there was agreement that the skills were helpful and that schools intended for their students to

acquire then before exiting to the work force.

The COMP/ACT test was chosen for field testing in Florida schools for two primary reasons: a) a number of Florida educators were involved in the development of COMP, and b) early field-testing of undergraduate students indicated that the COMP/ACT battery was a promising measure of the skills it was designed to assess. Additionally, no similar tests had been so carefully planned with such a solid support in the educational community.

The general skills identified by the COMP/ACT team were:

1. Functioning within Social Institutions

2. Using Science and Technology

3. Using Art

4. Communicating

5. Solving Problems

6. Clarifying Values

Each of these skills was broken down into components, in keeping with the basic precepts of competency based education (see Appendix II). Within the structure of the test batteries, questions were scored in relation to different skills at the same time. A question might ask the student to write a letter concerning an important social issue. The question would then be evaluated in terms of communication ability, value clarification, and understanding of social institutions.

The COMP/ACT long form, used in the Florida assessment project which preceded this, was reported on in detail in a report before the Florida Statewide Conference on Institutional Research (see Appendix II). The COMP/ACT team also produced a short form test which utilized a multiple-choice format and this form was the natural choice for the present study. It was much shorter in length and required no faculty time to score. It was essential, as far as the researchers were concerned, not to disrupt the schools while testing students. The COMP/ACT short form, while testing essentially the same skills as the long form, appeared to be a feasible instrument for securing the goals envisioned by the project.

II. PROCEDURES

Selection of Participating Institutions

Since the Florida assessment project which preceded this study had already surveyed all the post-secondary vocational schools in Florida, the researchers simply used the responses from that survey to select a number of schools to

participate. Some schools were selected because they had participated in the earlier study and had expressed a continuing interest. Others were selected because they had responded positively to the survey but because of difficulties in scheduling had not been able to participate previously. A total of 21 schools were invited to participate and 14 of these were able to be complete members of the field-testing team (a list of selected schools is Appendix III).

Visits to Participating Institutions

Each school which expressed a desire to participate in the study was visited by project staff. During this initial visit, the objectives of the project were discussed, as well as what the schools would be responsible for if they participated. Normally, during this initial visit it was determined whether the school would like to participate, and if so, a tentative testing date was established. The other factors involved in the actual testing were also addressed, such as the room to be used, number of students, AV equipment required and other similar matters.

Project staff kept in communication with the schools and especially with the administrators and counselors selected by the directors to handle the testing. During this time, it was stressed to the school personnel that their participation was important and greatly appreciated by the state department.

In every school, a letter was dispatched upon each contact of the project staff with the school personnel confirming whatever had been discussed and determined. In this way, the progress of the project was documented to the individual schools (see Appendices IV and V for general correspondence).

Since a major objective of the project was to integrate competency testing with instructions and guidance systems in vocational schools, it should be noted that the extent that this was accomplished depended on the ability of the individual schools to invest time and personnel in the effort. All the schools were willing, but many were constrained by their own priorities and were not able to spend as much time as they would have liked to spend. This has a bearing on the outcome, since the professional staff of those schools only had a minimal involvement in the study.

Administration of Tests to Students

The administration of the COMP/ACT objective test is more involved than a normal standardized group test. The test stimuli included the showing of films, the playing of audio-cassettes, and the viewing of art prints. It was therefore necessary to have at least two persons available during the test sessions to facilitate the completion of the task. In most cases, the school personnel volunteered to help in the test administrations.

The students were generally collected together by their instructors and the school personnel introduced the project staff to the students. All students who participated had volunteered as a result of being told about the test by their instructors. Sometimes, they knew about it ahead of time and other times

they were simply brought into the testing room and given the option of taking the test (See Appendix I for sample letter).

The project staff explained the test and briefly detailed its purpose. Additionally, he told the students what kind of feedback they would receive after taking the test. Information which was taken for research purposes was explained as such, and students were instructed not to fill out information which they did not wish the state department to have. The students were informed that all the information they gave would be held in strictest confidence. Students were allowed to ask questions during this explanation period concerning anything about the test, and they were given a short break midway through the testing procedure.

The first half of the test was paced by the administrator since the special test stimuli had to be given at one time (see Appendix VI for test scheduling). After the break, students were allowed to finish at their own pace. At all times, the students were informed how much time was left. None of the time limitations were designed to limit the responses of the students, although many students did feel constrained by them. The majority of the students finished before the time was called for each activity.

Students were encouraged to comment about the test after they had finished and had space on their test booklet to do so. There was also a three question inventory to determine the student's attitude toward the test. All the comments of the students' were duly recorded and addressed later in this report. Additionally, the reactions of instructors and guidance counselors was also noted and was essential to the completion of this study.

The test administrations occurred at all different times of the day, but particular programs within each school were usually tested all at one time. The size of the groups tested ranged from 20 to 70.

After the test administration was over, the project staff reported to the contact personnel at the school and let them know how the test had progressed and if any problems had arisen. At this time, arrangements were made to collect information about the students which they had volunteered to release, such as other test scores and grades. It was briefly discussed what kind of feedback the students and school personnel would be receiving and how long it would probably take. The feedback did not occur as rapidly as had been hoped because it was not feasible to score the tests as they were taken. They had to be scored in large lots to prevent the cost from being exorbitant.

Initial Scoring of Tests

The scoring of the COMP/ACT answer sheets was contracted to the American College Testing Program, the designer of the test. The answer sheets were collected, cleaned, and checked at the project office and sent to Iowa City, Iowa. The staff in Iowa City machine scored the tests and sent to the project staff a set of computer cards containing all the scored information from the tests, one set of cards for each student. In addition, ACT produced a set of

printed individual student reports. These reports contained the student's scores on each section of the test as well as a total or composite score. Beside each score was an explanation of the skill being measured by that score. These reports were later given to the student participants along with some additional information (see Appendix VII for sample).

Communicating Results to Students

Since the processing time required in the initial scoring of the tests was much longer than expected, students had to wait from one month to two and one half months to receive their results. This was less than ideal but was necessary to keep project costs within the proper boundaries. Because of the delay, however, half the students did not receive their results in person or have the benefit of any more than a letter of explanation (see Appendix VIII).

As soon as the test results were completed, project staff contacted each school administrator or contact person to set a time when the results could be given to the students. The students were gathered together as a group and were given their individual reports while the project staff explained how the scores reflected and compared against other students in similar programs. Students were also told what scores the test designers felt indicated a functional competence for each particular skill or content area. Where average scores had been obtained for certain programs such as Business Education or Nursing, students were given this information also.

The presentation of scores was tempered by the statements of the project staff that the test was still experimental and was not necessarily a proper measure of the skills addressed, especially for certain groups of students. Students were encouraged throughout the feedback session to make comments, criticisms, and suggestions and were told that their input was essential to the success of the project. The students responded very favorably during the feedback session. Since the test had been so difficult for most of them, their results were a pleasant surprise. Their comments were recorded and are reflected in the findings of this study.

Communicating Results to Administration and Faculty

The same day that the feedback presentation was made to the students, project staff conferred with school personnel to examine and discuss the test results. At some schools, many instructors, guidance counselors, and administrative staff discussed the test. In others, the results were simply reported to the person in charge of the testing. At all the schools, the personnel were very interested and positive about getting the results. The tentative findings of the study were reported also, in order to gain the counsel of those who were close to the students and their environment, as well as to give the opportunity for the opinions of school personnel to be reflected in the report.

Where a particular school did, on the average, better than other groups had done, this was indicated. In addition, students who scored in the upper

5% of the sample were recognized for their achievement. The possible uses of the test in various programs was addressed and though the response was positive, there was some apprehension because many of the instructors were not sure there was a need for "another test". The response was positive enough that the researchers felt that one objective of the study - fostering good attitudes toward competency testing - had been accomplished.

Collection of Criteria Data

There were several items of data for each student which had to be collected after the testing was completed. They were as follows:

1. Teacher Reported Grades

2. Reading Test Scores

3. Twelth-Grade Test Scores

4. Employer Ratings

Only a fraction of the students tested had this information available, and the employer ratings which were a part of the project objectives were not feasible for a project of only a year's duration. The records for schools that had participated in the earlier assessment project were too scarce to obtain grades and employer follow-ups since only three such schools so participated and the number of students was small in each school.

The employer rating information could not be obtained because there was not enough of a system in each school to trace students into their jobs in many cases. Where there was a system to follow students, not enough time elapsed during the project to find students working long enough to be evaluated by their employer. This was an area which a future study could explore since all the information about the students was still available on computer tape with the Division of Vocational Education at the writing of this report.

Because the employer information could not be obtained, researchers gathered other information which was available in order to give some indices of accomplishment. As noted previously, these included Florida Twelfth-Grade Test scores and TABE reading levels for many of the students. These were retrieved from the schools and from Department of Education records. The reading level scores were included because school personnel indicated at various times during the project that their students had difficulty reading the test and that this could have an adverse impact on their scores. Teacher reported grades were collected at the time of student feedback. This was the most abundant data available in all the schools except those with competency-based instruction.

All other information concerning the students was collected at the time of test administration, on the computer-scored answer sheets (see Appendix IX for a list of the information collected).

Analysis of Scored Test Information

The information from the students was subjected to a rigorous examination. All the data was input into a SIR© data base (Scientific Information Retrieval System) and the available criteria data was compared statistically to the test scores from the COMP/ACT test. A frequency report was output for all the factors examined, but no further test was made of any factor unless it stood-out in a possibly significant relationship. Only significant correlations or non-correlations were included in the findings. The remainder of information was still available on computer tape as of the writing of this report.

To explain further the analysis procedure, the dependent variables being examined were the COMP/ACT test scores. The independent variables were the various factors listed in Appendix IX. The subgroups of each independent variable were printed with the average test scores and wherever the differences between groups was more than one standard deviation, the relationship was subjected to a one-way ANOVA or a test of linearity. Although some interesting relationships appeared, not many statistically significant correlations came into view.

III. RESULTS AND FINDINGS

Limitations on Data

Before addressing the results of this study, it must be noted that the students who participated in the testing were by no means a random sample of vocational students in Florida. All through the selection process, factors entered in which would eliminate the possibility of a random sample. The schools often selected the programs to be tested and it was a few major programs in all the schools which constituted a large part of the sample (see Table I). This caution must be noted as it affects the understanding of all the data collected as well as its reliability.

TABLE I

Programs Represented

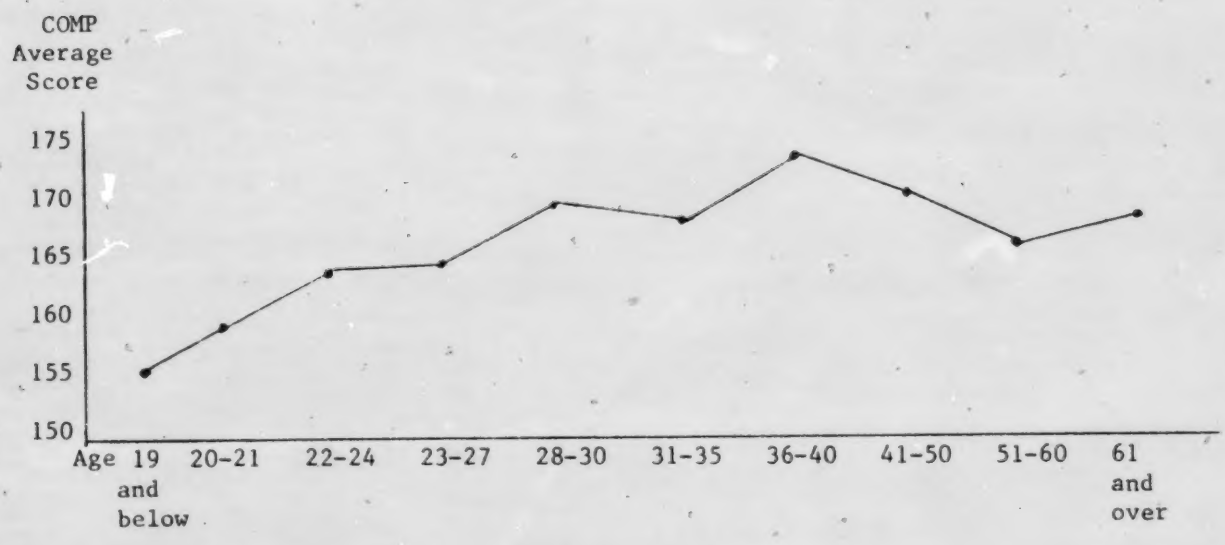
Program	Number of Students
Business Education	226
Health and Public Service	89
Computer Programing	48
Trade and Industrial	93
Distributive Education	35
Home Education	21

Findings

There was no significant difference between the performance of men and women on the COMP/ACT test. The average total score for men was 162 and for women 165. A three point variance on the total score was not significant with a standard deviation of 20. This was an important finding since the field testing of the original COMP/ACT battery in Florida Vocational schools indicates a slight bias in favor of women.

Performance did appear to be related to the age of the students tested (see figure I). COMP/ACT Scores increased, on the average, until the age group 36-40 was reached. At that point, performance declined. This finding was in agreement with the previous assessment study using the COMP/ACT battery. This age relationship could be related more to the type of program the students were in, however, since the programs did vary in average age. No conclusions were therefore drawn from this result.

Figure 1: Performance on the COMP and Age of Students Tested



A T-Test revealed a significant difference in the performance of blacks and whites on the COMP/ACT test (F 2.16, sig. .0001, T -9.87). The average score for black students was 147 and for white students 168. (The average score overall was 163). There was not a clear explanation for this difference between the two groups since there was a proportional representation of blacks and whites in the different vocational programs. There could have been a problem with language since the test had many stimuli whose occurance might not be common to a black community.

The students' reading levels, as measured by the TABE, correlated well with the total test scores (Pearson .5660, sig. .0001, N=199). This relationship would be expected since the COMP/ACT test was highly verbal. It does indicate, however, that a student might be handicapped if he did not read above a certain level. Since a significant portion of vocational and technical students in certain programs do not read above the eighth-grade level, the COMP test could be useless as a measure for those students. Further study would be required to confirm this indication (see Appendix X).

A somewhat lower but still significant correlation was evidenced between Florida Twelfth-Grade test scores and COMP scores (Pearson .4765, sig. .001, N=76). It was hoped by the COMP designers that the test would not be a duplicate of already existing college entrance exams. Research by the COMP/ACT staff has borne out this hope and the correlation here is enough to indicate that general intelligence and test taking ability affect COMP scores but are not the only variable involved.

The average scores for the major program areas represented in the test sample did reflect a different skill level between programs (see Table 2).

TABLE II

Average Scores by Program Area

Program Area	COMP Score
Computer Programming	177.8
Distributive Education	174.6
Health and Public Service	164.1
Average for all Programs	163.0
Business Education	160.8
Trade and Industrial	159.0
Home Economics	146.2

This could be explained by the different types of students attracted to the various programs. Additionally, the programs which had higher than average scores exercised more discretion in the acceptance of applications than did the programs with lesser than average scores.

As the norm table in Appendix XI indicates, Florida vocational students scored, on the average, in the 20-25 percentile range in comparison to a sample of college sophomores. If the 25th percentile were accepted as the standard for competence in each area tested, almost half of the students in the vocational sample would be evaluated as having the equivalent, in these skills at least, of a two year college degree. The samples were not matched for age or intelligence level and the number of accomplished vocational students would surely be higher if these factors were matched.

IV. CONCLUSIONS AND RECOMMENDATIONS

It is difficult to determine if students possess the skills necessary for effective functioning in adult roles using a pencil and paper test. The best indicator is whether they are able to function in the work force successfully. However, the whole philosophy of testing requires that there be some way of measuring ability - without having a person go through the process for which he is being tested. The most valuable correlations for vocational programs in the use of the COMP/ACT test would be the employer evaluations which this study was unable to acquire. For this reason, it is recommended that the data collected herein be used to obtain employer rating information on the students for whom it is available. In this way, the most important feature of the COMP/ACT test could be evaluated.

The problems which arose in the giving of the COMP/ACT tests to vocational students largely revolved around their novelty in the vocational school setting. It was difficult for students to relate to the test because its questions were not very relevant to many of the students' everyday lives. Of course, this could be said about any test, but students in vocational programs are generally working hard toward goals which are crucial to their well-being and they do not wish to be interrupted in their serious avocation. In many cases, the COMP/ACT test, or any similar test, is viewed only as an unwelcome intrusion. For this reason, it would seem better to modify the COMP/ACT test making it more relevant to the vocational student. The activities in the test could be tailored to a different group, just as they are now tailored to undergraduate college students, without sacrificing the essential concepts involved in the competency test or losing the value of three years of research.

The COMP/ACT test appears to be a good testing instrument, but it could be simplified for vocational programs and become a very useful tool, both for the guidance counselor and the student. The concept is good and needs to be further explored since this kind of evaluation is lacking currently in Florida's vocational programs.

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APPENDIX I

RALPH D. TURLINGTON
COMMISSIONER

STATE OF FLORIDA
DEPARTMENT OF EDUCATION

TALLAHASSEE 32304

MEMORANDUM

TO: Students at Collier County Area Voc/Tech Center

FROM: Clifford Nilson

Re: Testing

By this letter, you are being asked to use a few hours of your school time to take a test. This test should be different from most of the tests which you have taken. It uses films, radio reports, and magazine articles instead of just a test booklet where you read and answer questions. Hopefully, it will be a new and enjoyable experience for you.

There are two main reasons why we would like you to take this test. The first reason is that we want you to know how well you can do in three skills. These skills are important in your job and your everyday life. They are: communicating, problem solving, and clarifying values. The second reason is that we are trying to make up new tests for vocational programs. We want to test how well students can Do things, instead of how much they Know about things. If you take this test, you will be helping us and we hope to be helping you.

The test takes about 2 1/2 hours and will begin at 8:30, Wednesday morning on February 21st. Please let your instructor or counselor know if you can take this test with us. I look forward to meeting you in February.

Sincerely,

Clifford Nilson

Clifford Nilson, Research Assistant
Vocational Program
Competency Testing Project

CN/dc

an equal opportunity employer

APPENDIX II

Role of the Instructor in the Scoring of Competency Tests*

G. Emerson Tully and Clifford E. Nilson
Research Services, State University System of Florida

Background Statement

In the competency-based education movement, attempts are now being made to push beyond the task of identifying competencies to the second-level task of developing competency tests. The College Outcome Measurement Project (COMP) developed by the American College Testing Program (ACT) represents such an effort in test development.

The COMP/ACT battery has been given in a number of colleges and universities throughout the country. In Florida, this battery has been administered to approximately 300 students in postsecondary vocational-technical programs and to additional students at FAMU and FIU. Mr. Nilson and I constitute the staff for the Florida-based vocational education project, and we will draw upon our experience in scoring the competency tests given during the project in making this presentation to you.

The development of the COMP/ACT battery, which was supported by a grant from the Fund for the Improvement of Postsecondary Education

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*A paper delivered at the Eleventh Statewide Conference on Institutional Research, June 15, 1978, Winter Park, Florida.

(FIPSE), should not be looked upon as proof that wide consensus has been reached on the identification of college outcomes stated as competencies. There is still much discussion and debate that is ongoing about the nature of competencies in general education. The COMP/ACT battery came into being as a spearheading effort to determine how effectively a set of competencies could be measured once a group of educators reached tentative agreement on a set of outcomes in the liberal arts.

The Purpose of the Presentation

Competency tests are more expensive to administer than conventional standardized tests. Competency tests also require more time and effort on the part of the instructor in evaluating student performance than required by objectively scored tests. Our purpose here today is to summarize for you both the advantages and disadvantages of scoring competency tests as compared to more conventional tests.

Now that the purpose of this presentation has been stated, a more detailed description of the COMP/ACT battery will be given. First, let us consider a most basic question: What does this battery purport to measure? The six competency areas that the tests seek to assess are shown in Table 1.

Tasks for the Student Contained in COMP

The initial question that was asked in shaping this discussion was: What does the COMP/ACT battery measure? The next logical question to be raised is: How do the tests go about assessing the previously stated competencies?

Table 1: COMP General Education Outcomes

I. **Functioning within Social Institutions:** Can identify those activities and institutions which constitute the social aspects of a culture (for example, governmental and economic systems, religion, marital and familial institutions, employment, and civic volunteer and recreational organizations); understand the impact that social institutions have on individuals in a culture; analyze one's own and others' personal functioning within social institutions.

II. **Using Science and Technology:** Can identify those activities and products which constitute the scientific/technological aspects of a culture (for example, transportation, housing, energy, processed food, clothing, health maintenance, entertainment and recreation, mood-altering, national defense, communication, and data processing); understand the impact of such activities and products on the individuals and the physical environment in a culture; analyze the uses of technological products in a culture and one's personal use of such products.

III. **Using Art:** Can identify those activities and products which constitute the artistic aspects of a culture (for example, graphic art, music, drama, literature, dance, sculpture, film, architecture); understand the impact that art, in its various forms, has on individuals in a culture; analyze uses of works of art within a culture and one's personal use of art.

IV. **Communicating:** Can send and receive information in a variety of modes (written, graphic, oral, numeric, and symbolic), within a variety of settings (one-to-one, in small and large groups), and for a variety of purposes (for example, to inform, to understand, to persuade, and to analyze).

V. **Solving Problems:** Can analyze a variety of problems (for example, scientific, social, personal); select or create solutions to problems; and implement solutions.

VI. **Clarifying Values:** Can identify one's personal values and the personal values of other individuals, understand how personal values develop, and analyze the implications of decisions made on the basis of personally held values.

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As you know, conventional tests are of two general types: (a) tests that require essay answers, which the teacher reads, using his judgment as a frame of reference for evaluating the student response and (b) tests that call for the student to select the correct response from several possible responses or multiple responses; these latter tests are scored objectively.

The original COMP/ACT battery that was developed does not fit well under either of these two general types of tests. As you will see as this presentation continues, a revision of the COMP/ACT veers the battery toward becoming a multiple choice test.

The first form of the COMP/ACT test required six and one-half hours for administration. This length of time was much longer than most batteries which required only that a student select the correct answer to a question. The nature of the items presented by the COMP/ACT tests, as well as the length of time that was allowed the student to give his answer, accounted for the length of the test administration.

Tasks required by the COMP/ACT battery included the following:

1) Films were shown to students, who were asked to give their analysis of the issues and problems presented by the films in the form of short answers.

2) Narrative descriptions of social, educational, and economic problems and developments were presented to the students, who then gave their reaction in the form of short answers.

3) Taped monologues and discussions were presented. These activities dealt with the same kind of problems and issues presented by films and written narratives. Students were asked to respond either in writing or on tape (video or audio). One stimulus item required the student to write a letter

to a family member reflecting his views. In another item, the student was asked to express his opinions and values in a "letter to the editor".

4) An article from Business Week was read by the student, who was asked to use the narrative of the article and tabular data in giving his responses.

5) A report of the efforts of a South American country (Columbia) in dealing with its housing problem was presented. The student was asked to deal with numerical data and schematic drawings in making his responses.

6) A short story from New Yorker was read by the student, who was required to describe the author's intent, the readability of the story, and the impact of the story on readers.

7) Two selections of music were played on a tape recorder. The student was asked to write a memo to an employer explaining which of the two selections would better serve in a reception room, giving reasons for his choice.

8) The student was asked to analyze descriptive data for three cities (average rainfall, temperature, number of clear days, population, retail sales, traffic, etc.) and then recommend a building design for a bank, giving reasons based on descriptive data of each city. Alternative building designs were presented pictorially to the student.

9) The student was asked to study two art prints and then orally respond to questions directed to him (via tape recorder) as chairman of an art committee charged with selecting one of the two paintings for a rural town of 6,000 population.

Although there is not enough time to present the full range of test items to you, some can be presented, thereby giving you a flavor of the test and its approach to measuring competency.

Examples of COMP/ACT Stimuli and Responses

Four activities from the test battery are presented in Exhibits 1-6. Only those components of the activities which could be presented in written format have been included. No filmed or audio taped materials are shown in the exhibits, which do include the test instructions, questions and sample written responses for each activity. From these exhibits, some of the unique aspects of the competency measures are indicated, as contrasted to the features of more conventional tests. The six exhibits that are presented are:

Exhibit 1 -- Instructions and examples of short answer responses

Exhibit 2 -- Instructions for letter to a family member

Exhibit 3 -- Example of letter written by student

Exhibit 4 -- Instructions for art committee activity

Exhibit 5 -- Instructions for office memo

Ehxibit 6 -- Example of office memo produced by student

Evaluation Procedures

To evaluate answers, the scorer had to read the written responses and to listen to the recorded responses, often more than one time. ACT, in an attempt to heighten teacher objectivity in the scoring process and thereby improve the reliability of the scoring process, prepared a set of rating scales, one for each of the competency domains. The scales set forth a rationale for the teacher to use in determining the level of competency achieved by the students on the 45 different activities of the test.

Within each of the six domains were five or so areas, components of the broader competency domain. For example, the areas that consti-

Exhibit 1

ACTIVITY 1

INSTRUCTIONS FOR QUESTIONS 1-3: Quickly read questions 1-3 before viewing a 5-minute excerpt of the television documentary *Humanizing Work* (produced in 1975). While viewing the documentary, you should keep the questions before you and make notes. In responding, draw on all the knowledge and skills you have acquired from any source. You will have twelve (12) minutes immediately after viewing the documentary during which time you should work only on questions 1-3.

1. List some improvements that the film suggests this approach brings to work settings, and then name some social institutions (other than business and industrial organizations) that might be improved in similar ways.

	IMPROVEMENTS		SOCIAL INSTITUTIONS
a	People happier	a	libraries
b	not bored will work	b	schools
c	work gets done better	c	charity organizations
d	more self contact w/work	d	volunteer workers
e	People share experiences	e	

2. If the approach described in the documentary were attempted in the U.S., what problems would be likely to develop that might limit its chances of success?

a. the lazy people might like to get paid for doing little
b. the workers may tend to take too much controls
c. the workers may goof off w/out supervision
d. the foremans would fight against it 'cause they would be [illegible]
e. the People who enjoy their work+ forced to they may complain

3. In applying the approach in the U.S., what values commonly held by employers or employees would make the approach appealing to them?

a. the employees would be able to make more decisions
b. the employers would have their product improved
c. the employees would not go on strike so often
d. there would be less fuction between employers + employees
e. Both groups would enjoy their work more + not be bored

Exhibit 2 *

ACTIVITY 4

INSTRUCTIONS FOR QUESTION 9: Before listening to the taped discussion of "A Residential Family," quickly read question 9. While listening to the two-minute tape, you should keep the question before you and make notes. In responding, draw on all the knowledge and skills you have acquired from any source as well as the information in the tape. You will have twenty (20) minutes immediately after hearing the tape to write a personal letter to a close relative in answer to question 9, during which time you should work only on question 9. Take time to plan your letter so it would be clearly understood by the person you have in mind. (Your answer will be rated on its content as well as on your skill in written communication.)

9. In the space provided on page **17**, write a personal letter to a close relative describing the "Residential Family" as if they are in the same housing complex in which you live and have invited you, an unmarried person living alone, to join their "family."

- Explain several circumstances in our society that have apparently led these people to form a new type of family.

- Of the many reasons these people might have for forming this particular type of family, identify those with which you agree and those with which you disagree. (State your reasons for agreeing or disagreeing.)

- From what you know about (1) yourself and (2) the nature of this family, state the reasons for *and* against your joining this family. Take a position and explain why you have decided *either* to join, *or* not to join, the family.

* Note about the Exhibits

The entire COMP/ACT battery contains 45 questions grouped under 15 activities. The exhibits included in this paper comprise only about 30 percent of the total test. Even though the exhibits shown here do not adequately reveal the full array of diverse tasks (stimuli) presented to the students, the exhibits reflect the uniqueness of the COMP/ACT battery, both from the standpoint of the test items and from the standpoint of the student responses elicited by the items.

The examples of student responses included in the exhibits were reproduced without editing. In some instances, the writing of the students was retraced with a heavy pencil to improve reproduction.

Exhibit 3

Write your letter here. Use the back of the page if necessary.

Mom,

In today's society life has become very complex and cold. As you know for many years I have had difficulty in relating to others.

Recently however I have met a group of people that live together as one big happy family. They have invited me to come into their home on many occasions to eat and talk. I have been able to see and understand how their residential home has been successful. They all seem to care deeply about one another and all seem to show a sense of belonging.

At first I was very critical of their situation but as I considered today's society it has become very apparent why this has come about. With the world's ever increasing population and the great expense in living this idea seems to work. Older people are cared for and the children can be cared for by older children and young adults while their parents have to work. The "only" child is really no longer so, and as the child grows he learns early how to interact with others.

I feel at this time that this is a unique and rewarding way to experience living I will be able to interact with many other people and I be perhaps better equipped to understand their ways of thinking. I may even later feel that this may be a proper environment for raising children. I'm really enjoying this new way of interacting, for this reason I've decided to at least move in to the residential home on a temporary basis to see what it is all about. I know I have your blessings and confidence in me. Please write soon.

Love your son,

Erich

Exhibit 4

ACTIVITY 12

INSTRUCTIONS FOR QUESTION 34. Do not attempt to answer question 34 in this booklet. Your oral answer will be taped at the time and place announced. First, read question 34. Then study the two prints you are shown (Grant Wood's "Midnight Ride of Paul Revere" and Paul Cezanne's "Village Panorama") and take notes about them. You will have ten (10) minutes to read the question and take notes about the prints. The prints will also be on display during the taping session. At that time you will be asked three questions similar to those indicated below and will have one minute to respond to each question. (Your oral answers will be rated on their content as well as on your skill in oral communication.)

34. As chairperson of the art committee, you have just given a speech to a group of eighty (80) people in your community, a rural town of 6,000. The decision for the town to spend $1200.00 to buy an original painting for the library has attracted interest and some debate. In your speech, you have tried to explain and defend the procedures and decisions of the committee that led to the final two choices of paintings to buy. After showing and describing these pictures, you are ready for questions from the audience.

    While you do not know what questions you will be asked, you are expecting such questions as these.

    - Why are these pictures better than others you looked at?
    - How does either picture fit life in our community?
    - What does either picture mean?

Exhibit 5

ACTIVITY 14

INSTRUCTIONS FOR QUESTION 39: Before listening to examples of two different types of music, quickly read question 39. After you have listened to the 5½ minutes tape, you will have twenty (20) minutes to write your response, during which time you should work only on question 39. (Your answer will be rated on its content as well as on your skill in written communication.)

39. As a college graduate, you are working in an office that deals with the general public and has a large adjoining waiting room where individuals usually have to wait for over one-half hour. Your employer has decided to provide music in the waiting room, and has asked for suggestions from staff and others. A music consultant has suggested to the employer that the type of music played should be catchy, proven in popularity, reflect current tastes in style and arrangement, and include performers that might be recognized by listeners.

    Choose either one of the two **types** of music you have just heard and write a memorandum to your employer in the space provided on page 55, explaining your choice in a persuasive way. In this memo:

    - Indicate which type of music you would choose (and specify the kind of office you have in mind).
    - State several good reasons why you think this type of music is to be preferred rather than the other type.
    - Make clear what functions this type of music is to serve—for example, why it fits the clientele, the office, etc.
    - Describe what effect the music will have on you, as it will be audible to the office staff.
    - Evaluate the reasons provided to the employer by the music consultant.

Exhibit 6

Write your memo here. Use the back of the page if necessary.

Dear Mr. E.:

I believe the popular tunes will be the better choice in our waiting room. A relaxed, pleasant atmosphere with this kind of music will make the long wait seem shorter.

This popular music should be chosen because of its familiarity to the listeners; it puts them more at ease. This type of music could fit any type of clientele or office. The fact that it has lyrics gives the listener something to think about while waiting. It relaxes & soothes rather than stimulates.

Since the office workers will hear the music too, they can work better by recognizing popular tunes they like. It makes for a more pleasant atmosphere.

Our music consultant is basically right in my opinion on the type of music. There are few radio stations with classical music playing, thus the average citizen is relatively unfamiliar with that kind of music. The popular type song is familiar, catchy & interesting to listen to. Please consider these remarks.

V.G.

tuted the broad domain of problem solving were: (a) identifying and defining problems, (b) approaches to solving problems, (c) generating possible solutions or hypotheses, (d) collecting data and understanding data restraints, (e) determining the logical consistency of data, problem, and solution, and (f) determining a proper solution.

In each scoring manual, short answer solutions for each of the questions contributing to the assessment of a certain competency were given. For example, when a student was asked to cite the problems of present-day society that have led to communal living, his answers were checked against a list of acceptable answers in the manual. If he had given correct answers, his response contributed to his evaluation in the component, "understanding the logical consistency between a problem and the origin of that problem". If a student did not give at least one answer to each of the three questions making up an area component, he was judged as not having fulfilled that competency.

Some levels of competency were established on a quantitative basis only; other responses required qualitative judgement to determine the level of competency. With respect to answers judged quantitatively, at least one acceptable answer on each set of questions meant minimal level and two acceptable answers indicated a higher level. The manual prescribed four levels of competency, each based on the number of correct answers given in response to a question.

Estimates of Required Time for Scoring

The amount of time required to evaluate student performance on the COMP/ACT was formidable, as the following estimates show:

One student COMP/ACT booklet: 2-2½ hours

Booklets for a class of
30 students:

36-45 hours - written response scoring

24-30 hours - taped response scoring

60-75 hours - total

The entire COMP/ACT battery was not given to postsecondary vocational education students. The ten schools that participated in the project advised us that they could give a half-day to the testing, but no more. We eliminated three activities from the test battery, reducing the administration time from six and one-half hours to about four and one-half hours.

The program directors in the vocational-technical area centers also advised us that the teachers would not be able to devote the necessary hours to evaluation of the tests. (An average of 30 students took the tests in each school.) We therefore organized a team of six evaluators, with each evaluator assigned to scoring the components of one of the six competency domains.

There is no question but that the team approach to scoring competency test results was the best approach to use when there was a large number of tests to be scored. The team approach, however, had a serious weakness; it removed the teacher from the scoring process, and the teacher lost an opportunity for an in-depth view of the student's ability to communicate, to represent his values, to function in a problem-solving situation, and to express his understandings of social institutions, the arts, and science and technology.

The Objective Form of the COMP/ACT Battery

Because of the considerable amount of time involved in evaluating student responses to the original COMP/ACT test, ACT developed a form of the battery that could be scored objectively. This new form of the test presented the student with the same stimulus materials as the older form of the test, but instead of writing responses to some items and responding orally to other items, students selected the correct responses from multiple choice options.

This approach to responses and scoring in the COMP/ACT battery reduced the administration time from six and one-half hours to two and one-half hours. The shortened administration time made the new form of the test more feasible in most school situations. In the coming school year, the new form of the test will be administered in selected vocational-technical area centers throughout Florida, and an effort will be made to associate scores on both the older and newer forms of the test with teacher grades and employer ratings.

The older form of the test is not being discontinued; instead, it will be available to provide institutions of higher learning with a choice of which form to administer.

The shorter administration time of the objective test and its scoring ease make the newer form more attractive to many teachers than the older form of the battery. We are inclined to say at this point that the objective test is administratively a more feasible measure of learning outcomes than the non-objective form in the vocational-technical centers of Florida; vocational-technical educators appeared to have misgivings about using a battery that required more than two and one-half hours to administer and which also required considerable teacher effort to score.

In closing, the point should be made that the older form of COMP/ACT closely linked the teaching process to the measurement process. The basis for this statement is our involvement in the scoring of the problem-solving and communicating domains of the responses of nearly 300 students. From reading the letters and memos written by the students, from assessing their short answer responses, and from listening to the oral presentations of their views and opinions, we felt that we came to know the total student, his needs, his strengths, and his weaknesses. If we had had a teaching relationship with these students, we believe that the results of the COMP/ACT tests would have increased our capabilities to be productive and effective in our teaching role.

Although the objective form of the COMP/ACT may have less potential for linking the measurement process to the teaching process than the longer form, even so, the objective form promises to be a measurement and diagnostic instrument of significant value. In a follow-up project to begin in July, 1978, an effort will be made to determine the merits of integrating the objective form of the COMP/ACT into the instructional program of vocational-technical area centers in Florida. A year from now, we should be able to up-date our knowledge of the COMP/ACT battery, and hopefully, make comparative evaluations of the COMP/ACT with other competency measures that are beginning to appear.

References

College Outcome Measures Project, Annual Report, Iowa City, Iowa, American College Testing Program, 1977.

COMP/ACT Measurement Battery, Administration Guide (Form II), American College Testing Program, 1977.

COMP/ACT Measurement Battery, Rating Scales (Form II), American College Testing Program, 1977.

COMP/ACT Measurement Battery, Student Booklet (Form II), American College Testing Program, 1977

APPENDIX III

Possible Participants in COMP/ACT 78-79 Testing

Area Vocational-Technical Centers

Atlantic Vocational Center
4700 Hammondsville Road
Pompano Beach, FL 33063
(Broward County)
Glen S. Sanderson, Director

Lindsey-Hopkins Education Center
1410 N.E. 2nd Avenue
Miami, FL 33132
(Dade County)
John T. Coursey, Director

George Stone Voc-Tech Center
Route 10, Box 530, Longleaf Dr.
Pensacola, FL 32506
(Escambia County)
John E. Christian, Director

Lake County Area Voc-Tech Center
2001 Kurt St.
Eustis, FL 32726
(Lake County)
Kenneth Bragg, Director

Lee County Area Voc-Tech Center
3800 Michigan Ave.
Ft. Myers, FL 33901
(Lee County)
Howard Scherman, Director

Lewis M. Lively Area Voc-Tech Center
500 Appleyard Dr.
Tallahassee, FL 32304
(Leon County)
James Joyce, Director

Manatee Area Voc-Tech Center
5603 34th St.West
Bradenton, FL 33507
Joe F. Leatherman, Principal

St. Petersburg Voc-Tech Institute
850 34th St.South
St. Petersburg, FL 33711
(Pinellas County)
Robert C. Anderson, Director

St. Augustine Technical Center
Collins Ave.
St. Augustine, FL 32084
(St. Johns County)
Ralph Upton, Director

Washington-Holmes Voc-Tech Center
Chipley, FL 32428
(Washington County)
Wayne C. Saunders, Director

Seminole Community College
Sanford, FL 32771
(Seminole County)
Russell L. Moncrief, Director
Voc-Tech Education

South Florida Jr. College
600 West College Drive
Avon Park, FL 33825
(Highlands County)
Donald H. Farrens, Dean
Vocational, Technical & Adult Ed.

Florida Community Colleges

Miami-Dade Community College, South
Miami, FL 33176
Perter Masiko, Jr. President
(Dade County)
305/596-1200

St. Petersburg Jr. College
P.O. Box 13489
St. Petersburg, FL 33733
Michael M. Bennett, President
(Pinellas County)
813/546-0011

RALPH D. TURLINGTON
COMMISSIONER

STATE OF FLORIDA
DEPARTMENT OF EDUCATION

TALLAHASSEE 32304

September 7, 1978

Dear --------,

During the past year, a battery of competency tests was administered in twelve vocational-technical centers throughout Florida. The project was designed to assess the feasibility of testing for competencies in general education knowledge and skills attained by postsecondary vocational-technical students.

The project generally attested to the productive use that can be made of this innovative approach to testing, as contrasted to the more conventional tests that measure primarily the acquisition of subject matter.

A basic finding of the study, however, was that the testing session should not exceed 2 1/2 hours. The national agency that published the original test battery, the American College Testing Program (ACT) has subsequently developed a shortened form of the test battery with an administration time of 2 1/2 hours. The original form of the competency tests required 6 1/2 hours of testing time.

A follow-up project using the short form of the battery is being planned. In that your school previously responded favorably to participating in the original project, but was not included in the study because of limited project resources, I am writing you to ask if you would like for your school to participate in the follow-up project to start this fall and end next summer.

On the enclosed form, the objectives of the project are stated, and the action to be taken by participating schools is outlined.

I will be grateful to you if you would complete the attached form and return it to me on or before September 22. Questions regarding this letter should be addressed to Mr. Clifford Nilson, Project Research Assistant. (904-438-1831)

Cordially,

Joe D. Mills, Director
Division of Vocational Education

JDM/tcn
Enclosure

an equal opportunity employer

PROJECT OBJECTIVES

1) Field test the shortened competency battery, obtaining the reactions of teachers, students, and administrators to the test.

2) Compare the performance of vocational-technical students on the competency tests with instructor grades and ratings.

3) Working within the established placement policies of the participating schools, compare performance of students on the competency tests with employer ratings for students who are employed part-time or who accept full-time employment after January 1, 1978.

RESPONSIBILITIES OF PARTICIPATING SCHOOLS

A participating school will be asked to:

select a sample of students to be tested; arrange for a testing room, 16mm projector, cassette tape recorder, and screen; provide instructor ratings and grades of students for analysis by project staff; and provide employer ratings of those students who would have them for analysis by project staff.

NO TEACHER TIME WILL BE REQUIRED TO SCORE TESTS AND THERE WILL BE NO COST TO THE SCHOOL FOR PARTICIPATION IN THE TESTING. PROJECT STAFF WILL ADMINISTER COMPETENCY TESTS ON DATES APPROVED BY THE SCHOOL.

PLEASE DETACH AND RETURN TO JOE D. MILLS, DIRECTOR,
DIVISION OF VOCATIONAL EDUCATION

_____ My Center would definitely like to participate, and I would welcome a visit from the project staff to discuss arrangements.

_____ Before deciding to take part in this program of testing, I would like to discuss the project further with project staff.

_____ I regret to say that my Center will not participate in the project.

Comments _____

_____

_____ _____
Name Address

_____ _____
Title Phone

APPENDIX V

RALPH D. TURLINGTON
COMMISSIONER

STATE OF FLORIDA
DEPARTMENT OF EDUCATION

TALLAHASSEE 32304

September 7, 1978

Dear ---------,

Administration of a group of competency tests (The College Outcomes Measurement Battery, published by the American College Testing Program) in 12 vocational-technical centers throughout Florida has been completed. The project was conducted during the past year by Dr. G. Emerson Tully, Director of Research Services, Board of Regents.

I am grateful to you and the directors of the other eleven institutions and centers for your participation in the project. Without your cooperation and assistance, we could not have carried forward this project which was designed to assess the feasibility of competency testing for postsecondary vocational-technical students in Florida.

The final report is being written and will be distributed in the early fall. Pending the publication of the full report, I will briefly outline some of the principal findings:

1. The time given over to testing should not extend as long as 4½ hours, but should be limited to about one-half that length of time.

2. About one out of every three students tested demonstrated a level of competence in general education knowledge and skills which was likely to be required by some baccalaureate institutions.

3. Students received competency tests as favorably as they received more conventional tests, despite their unfamiliarity with the procedures and design of the competency tests.

4. Persons in the age bracket 27-32 tended to perform better on the competency tests than those at other age levels.

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Page Two

Funds are available for a follow-up project designed to associate competency test scores with instructor grades and ratings and employer ratings. The director of the follow-up project will be in touch with you shortly to determine your interest in taking part in the second year of this vitally significant research effort.

Again may I thank you for your willingness to assist in the assessment of competency testing. I am truly proud of Florida's efforts in spearheading competency based education. Your leadership and that of the directors of the other participating schools has brought this about.

Questions regarding this letter should be addressed to Mr. Clifford Nilson, Project Research Assistant (904-488-1831).

Cordially,

Joe D. Mills, Director
Division of Vocational Education

JDM/tcn

COMP

COMP/ACT OBJECTIVE TEST (Form II)

Assessment of General Education Knowledge and Skills

The COMP/ACT Objective Test uses a variety of materials to provide you with an opportunity to demonstrate your competence in six important areas of skill and knowledge: Communicating, Solving Problems, Clarifying Values, Functioning within Social Institutions, Using Science and Technology, and Using the Arts.

In the fifteen (15) activities listed below you will view, hear, or read materials to stimulate your thinking about the questions. You should approach these materials in a critical frame of mind, since they contain controversial ideas not necessarily endorsed by your teachers or ACT. In answering the questions, you should use the information actually presented in these materials. In addition, you are urged to draw on all the knowledge and skills you have acquired from courses and life experiences.

ACTIVITY	TOTAL TEST TIME
1. View film *Humanizing Work*	8 minutes
2. Listen to taped discussion of "A Residential Family"	6 minutes
3. View film *Rich Man, Poor Man: Food*	10 minutes
4. Listen to taped newscast on energy shortage	9 minutes
5. View film *Cuba: Art and Revolution*	8 minutes
6. Listen to examples of two types of music	7 minutes
7. View art prints	7 minutes
8. Reflect on membership in a volunteer group	3 minutes
9. Read story and memo about "Bus Boycott"	11 minutes
10. Read article and table on the economy	14 minutes
11. Reflect on costs and benefits of medical technology	4 minutes
12. Read ad "A Solution from the Garage"	10 minutes
13. Read article on Colombian shell housing	13 minutes
14. Read short story "Orientation"	12 minutes
15. View pictures of bank buildings	9 minutes

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APPENDIX VII

COMP/ACT Test Scores for John Doe

TOTAL TEST SCORE	163
I. Functioning within Social Institutions: Can identify those activities and institutions which constitute the social aspects of a culture (for example, governmental and economic systems, religion, marital and familial institutions, employment, and civic volunteer and recreational organizations); understand the impact that social institutions have on individuals in a culture; analyze one's own and others' personal functioning within social institutions.	48
II. Using Science and Technology: Can identify those activities and products which constitute the scientific/technological aspects of a culture (for example, transportation, housing, energy, processed food, clothing, health maintenance, entertainment and recreation, mood-altering, national defense, communication, and data processing); understand the impact of such activities and products on the individuals and the physical environment in a culture; analyze the uses of technological products in a culture and one's personal use of such products.	52
III. Using Art: Can identify those activities and products which constitute the artistic aspects of a culture (for example, graphic art, music, drama, literature, dance, sculpture, film, architecture); understand the impact that art, in its various forms, has on individuals in a culture; analyze uses of works of art within a culture and one's personal use of art.	25
IV. Communicating: Can send and receive information in a variety of modes (written, graphic, oral, numeric, and symbolic), within a variety of settings (one-to-one, in small and large groups), and for a variety of purposes (for example, to inform, to understand, to persuade, and to analyze).	60
V. Solving Problems: Can analyze a variety of problems (for example, scientific, social, personal); select or create solutions to problems; and implement solutions.	50
VI. Clarifying Values: Can identify one's personal values and the personal values of other individuals, understand how personal values develop, and analyze the implications of decisions made on the basis of personally held values.	29

RALPH D. TURLINGTON
COMMISSIONER

STATE OF FLORIDA
DEPARTMENT OF EDUCATION
TALLAHASSEE 32304

Dear Student,

Enclosed are results from the competency testing which you participated in during your recent vocational training. We visited your school to give you your results but you were not there at the time. Hopefully, your absence means that you have found employment in your chosen job field.

Your individual results are printed on the enclosed sheet and scores are reported for each section of the test and for a composite total score. The sheet also includes a brief description of the skill areas measured.

The intent of this test was not to measure you against other students, but to determine if you have attained a mastery in each of the skills measured which indicates that you will be successful in your adult life (at least in as much as these skills are necessary to success). For this reason, your scores are not reported as percentile ranks in relation to other students.

A table follows which sets forth three sets of scores:

1) the desired minimum level of competency
2) the state averages
3) the highest scores attained in the state

Area Tested	Standard	Average	Highest
Social Institutions	42.0	56.5	75.0
Science and Technology	42.0	54.4	82.0
Artistic Activities	42.0	52.0	76.0
Communicating	36.0	44.0	64.0
Problem Solving	48.0	65.8	88.0
Value Clarifying	36.0	46.7	68.0
Total Test Score	126.0	163.0	220.0

We hope that this information will be of use to you and we very much appreciate your willing participation in this effort. Please let us know if we can be of further assistance to you in interpreting your test results.

Sincerely,

Clifford Nilson

Clifford Nilson
Acting Project Manager
Competency Testing Project

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an equal opportunity employer

APPENDIX IX

Information Collected for Each Student

1. Program
2. Sex
3. Self-Reported Grades
4. Ethnic Group
5. COMP Test Scores
6. Reading Level
7. Age
8. Years Schooling Completed
9. Teacher Reported Grades
10. Point in Current Vocational Program
11. Twelfth-Grade Test Score

APPENDIX X

Score Reports for Total Population

N512

Area	Average	Minimum	Maximum	STD Dev	STD Error
Social	56.5	36.0	75.0	7.32	0.32
Science	54.4	28.0	82.0	9.02	0.40
Art	52.0	34.0	76.0	8.00	0.35
Commun	44.0	28.0	64.0	6.42	0.28
Problems	65.8	40.0	88.0	9.08	0.40
Values	46.7	26.0	68.0	7.66	0.34
Total	163.0	107.0	220.0	20.8	0.92

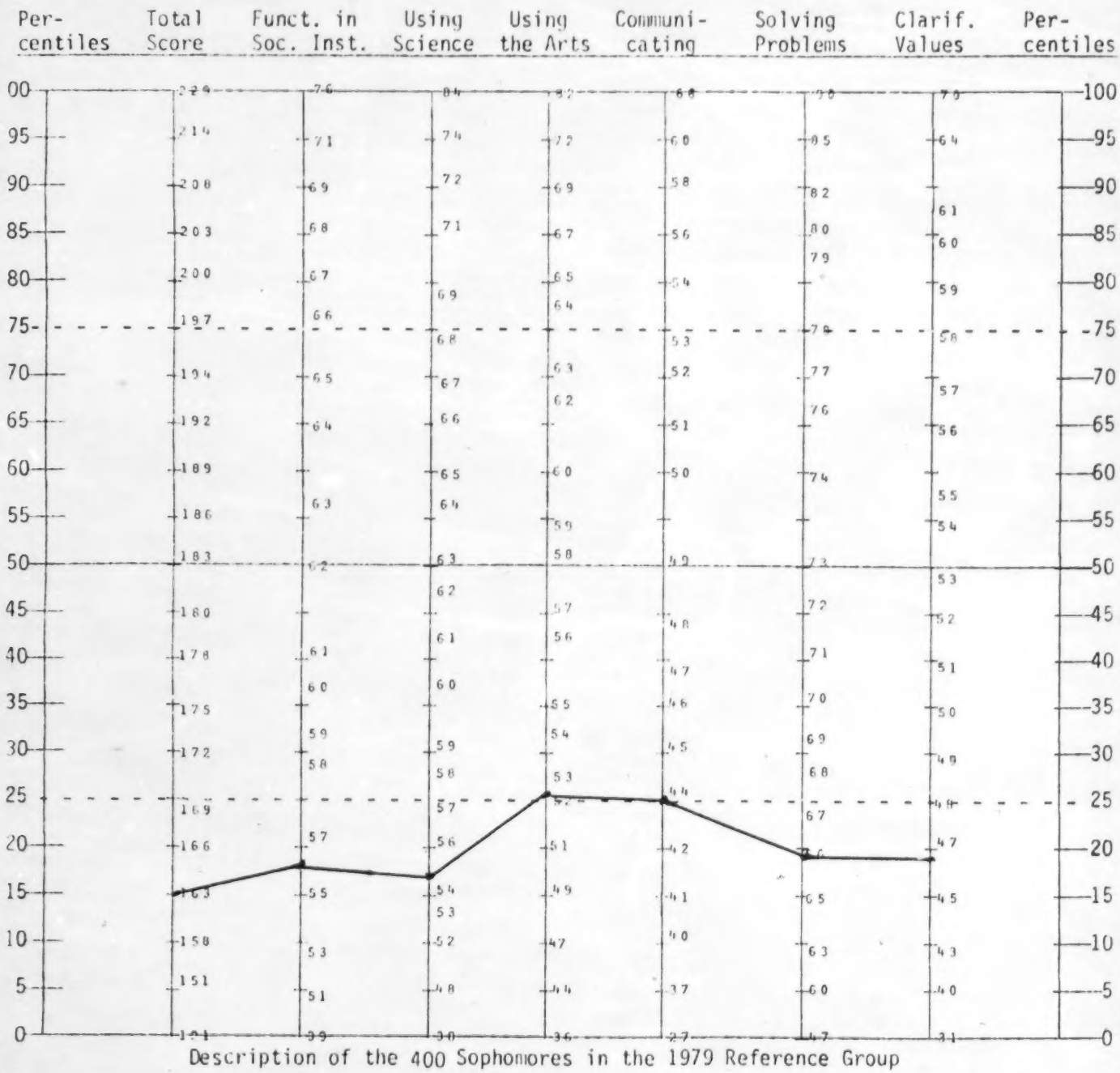
Score Reports for Reading Group

N199

Social	55.2	36.0	75.0	7.64	0.54
Science	53.7	28.0	75.0	9.24	0.66
Art	51.1	34.0	72.0	7.63	0.54
Commun	42.8	28.0	64.0	6.28	0.45
Problems	65.0	40.0	87.0	9.50	0.67
Values	46.0	26.0	65.0	7.86	0.56
Total	160.0	107.0	216.0	20.92	1.48

COMP/ACT OBJECTIVE TEST
1979 SOPHOMORE NORMS FOR 400 SOPHOMORES AT 10 INSTITUTIONS

Directions: Circle the place where your score falls on each scale. Refer to the Percentiles to judge your performance compared to sophomores in the reference group. (For example, if your Total Score was 182, you scored above almost 50% of the seniors in the reference group.)



Description of the 400 Sophomores in the 1979 Reference Group

36% Men
64% Women

Area of Interest
33% Social Sciences
52% Natural/Biol. Sciences
15% Arts/Humanities

35% Age 19 or below
38% Age 20-22
15% Age 23-30
12% Age 31 or above

ACT Composite (or equivalent for SAT Total) scores available for 282 students
Median Range 19-21

ACT Composite Range
3% below 10
9% ACT 10-12
19% ACT 13-15
18% ACT 16-18
17% ACT 19-21
17% ACT 22-24
18% ACT 26-36